

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Group: Attorney Docket # 1965

Applicant(s) : HESS, J., ET AL

Serial No. :

Filed :

For : VALVE WITH ELASTIC SEALING ELEMENTS

SIMULTANEOUS AMENDMENT

January 7, 2002

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application
please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

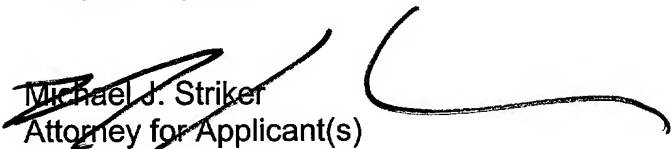
REMARKS:

This Amendment is submitted simultaneously with filing of the above identified
application.

With the present Amendment applicant has amended the claims so as to eliminate
their multiple dependency.

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,


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Claims

1. A valve (10, 110) having a valve chamber (14, 114),
5 having at least one inlet conduit (16, 116) and one outlet
conduit (18, 118) branching off from the valve chamber, having a
movable lifting rod (34, 134), one end of which opens into an
actuator (53), and having at least one valve member (36, 136,
236) secured to the lifting rod (34, 134), and having at least
10 one valve seat (22, 122) cooperating with the valve member (36,
136, 236), characterized in that the valve seat (22, 122) and/or
valve member (36, 136, 236) is elastically deformable, and that
the elasticity of the valve seat (22, 122) and/or valve member
(36, 136, 236) is at least so great that the valve member (36,
136, 236) can be thrust through the valve seat (22, 122) by what
is in particular an external exertion of force and subsequently
the valve seat (36, 136, 236) and the valve member (22, 122)
return to their outset state.

20 2. The valve (10, 110) of claim 1, characterized in that
the at least one valve seat (22, 122) and the associated at least
one valve member (36, 136, 236) have a chamfer (58, 158 and 56,
156, 256) relative to the axis of the lifting rod (34, 134),
which chamfers correspond to one another.

25 3. The valve (10, 110) of [one of claims 1 or 2] claim 1,
characterized in that the elasticity of the valve seat (22, 122)
and/or valve member (36, 136, 236) is produced by means of the
elastic properties of the material used and/or by the specially
30 designed shape of the valve seat (22, 122) and/or of the valve
member (36, 136, 236).

4. The valve (10, 110) of claim 3, characterized in that recesses (82, 182) are located in the valve seat (22, 122) and/or in the valve member (36, 136, 236), which recesses are capable of receiving elastic material comprising the valve seat (22, 122) and/or the valve member (36, 136, 236) while the valve member (36, 136, 236) is being led through the valve seat (22, 122).

5. The valve (10, 110) of [one of the foregoing claims] claim 1, characterized in that the surfaces (86, 186 and 84, 184) of the valve seat (22, 122) and/or of the valve member (36, 136, 236) are treated with a lubricant, which reduces a sliding friction that occurs while the valve member (36, 136, 236) is being led through the valve seat (22, 122).

6. The valve (10, 110) of [one of claims 1-5] claim 1, characterized in that the at least one valve member (36, 136, 236) of the valve (10, 110) is calked at the lifting rod (34, 134).

7. The valve (10, 110) of [one of the foregoing claims] claim 1, characterized in that a second valve member (38, 128) is mounted on the lifting rod (34, 134), on the side of the at least one valve member (36, 136, 236) opposite the at least one valve seat (22, 122).

8. The valve (10, 110) of claim 7, characterized in that the second valve member (38, 138) and the valve seat (24, 124) belonging to this second valve member (38, 138) are likewise elastically deformable in such a way that both valve members (36, 136 and 38, 138) can be thrust through the valve seats (22, 122 and 24, 124) with in particular external expenditure of force.

9. The valve (10, 110) of [one of the foregoing claims] claim 1, characterized in that a second outlet conduit (20, 120) with an associated valve seat (24, 124) and valve member (38, 138) branches off from the valve chamber (14, 114) of the valve (10, 110).

10. The valve (10, 110) of [one of claims 1-9] claim 1, characterized in that the valve has a magnetic actuator (53).

11. The valve (10, 110) of [one of the foregoing claims] claim 1, characterized in that the lifting rod (34, 134) is made from plastic.

12. The valve (10, 110) of claim 11, characterized in that the valve members (36, 136 and 38, 138) are welded directly into the lifting rod (34, 134).

13. The valve (10, 110) of [one of claims 1-12] claim 1, characterized in that the valve chamber (14, 114) is hollowed out integrally.

14. The valve (10, 110) of [one of the foregoing claims] claim 1, characterized in that the valve (10, 110) is part of the water-associated control of the cycle of a heating or cooling system.

Claims

1. A valve (10, 110) having a valve chamber (14, 114),
5 having at least one inlet conduit (16, 116) and one outlet
conduit (18, 118) branching off from the valve chamber, having a
movable lifting rod (34, 134), one end of which opens into an
actuator (53), and having at least one valve member (36, 136,
236) secured to the lifting rod (34, 134), and having at least
10 one valve seat (22, 122) cooperating with the valve member (36,
136, 236), characterized in that the valve seat (22, 122) and/or
valve member (36, 136, 236) is elastically deformable, and that
the elasticity of the valve seat (22, 122) and/or valve member
(36, 136, 236) is at least so great that the valve member (36,
136, 236) can be thrust through the valve seat (22, 122) by what
is in particular an external exertion of force and subsequently
the valve seat (36, 136, 236) and the valve member (22, 122)
return to their outset state.

2. The valve (10, 110) of claim 1, characterized in that
the at least one valve seat (22, 122) and the associated at least
one valve member (36, 136, 236) have a chamfer (58, 158 and 56,
156, 256) relative to the axis of the lifting rod (34, 134),
which chamfers correspond to one another.

3. The valve (10, 110) of claim 1, characterized in that
the elasticity of the valve seat (22, 122) and/or valve member
(36, 136, 236) is produced by means of the elastic properties of
the material used and/or by the specially designed shape of the
valve seat (22, 122) and/or of the valve member (36, 136, 236).

4. The valve (10, 110) of claim 3, characterized in that

recesses (82, 182) are located in the valve seat (22, 122) and/or in the valve member (36, 136, 236), which recesses are capable of receiving elastic material comprising the valve seat (22, 122) and/or the valve member (36, 136, 236) while the valve member
5 (36, 136, 236) is being led through the valve seat (22, 122).

10 5. The valve (10, 110) of claim 1, characterized in that the surfaces (86, 186 and 84, 184) of the valve seat (22, 122) and/or of the valve member (36, 136, 236) are treated with a lubricant, which reduces a sliding friction that occurs while the valve member (36, 136, 236) is being led through the valve seat (22, 122).

15 6. The valve (10, 110) of claim 1, characterized in that the at least one valve member (36, 136, 236) of the valve (10, 110) is calked at the lifting rod (34, 134).

20 7. The valve (10, 110) of claim 1, characterized in that a second valve member (38, 128) is mounted on the lifting rod (34, 134), on the side of the at least one valve member (36, 136, 236) opposite the at least one valve seat (22, 122).

25 8. The valve (10, 110) of claim 7, characterized in that the second valve member (38, 138) and the valve seat (24, 124) belonging to this second valve member (38, 138) are likewise elastically deformable in such a way that both valve members (36, 136 and 38, 138) can be thrust through the valve seats (22, 122 and 24, 124) with in particular external expenditure of force.

30 9. The valve (10, 110) of claim 1, characterized in that a second outlet conduit (20, 120) with an associated valve seat (24, 124) and valve member (38, 138) branches off from the valve

chamber (14, 114) of the valve (10, 110).

10. The valve (10, 110) of claim 1, characterized in that the valve has a magnetic actuator (53).

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11. The valve (10, 110) of claim 1, characterized in that the lifting rod (34, 134) is made from plastic.

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12. The valve (10, 110) of claim 11, characterized in that the valve members (36, 136 and 38, 138) are welded directly into the lifting rod (34, 134).

13. The valve (10, 110) of claim 1, characterized in that the valve chamber (14, 114) is hollowed out integrally.

14. The valve (10, 110) of claim 1, characterized in that the valve (10, 110) is part of the water-associated control of the cycle of a heating or cooling system.